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Spanish/English Bilingual Adult Performance on Nicholas and Brookshire Stimuli: Evaluation of Discourse Variables and Predictors of Performance

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Introduction

There is little information about discourse abilities in U.S. Spanish/English bilingual adults, yet discourse research is crucial to assessing and treating bilingual aphasia. Thus, the current study examines discourse production in bilingual adults using the stimuli and analysis measures from Nicholas and Brookshire (1993) (N&B). See research questions (RQ) in the Results section.

Method

Eighty-eight young (22.6 years) Spanish/English bilingual adults completed: 1) a language use questionnaire, 2) the discourse tasks from N&B, 3) naming of *An Object and Action Naming Battery* stimuli (O&A Battery: Druks & Masterson, 2000). Testing was done in two sessions (a week apart) with language of testing counterbalanced across participants. Variables analyzed were: Words (W), Correct information units (CIUs) (relevant, informative words), Words/minute (WPM) and %Mazes/Pauses. Words and CIUs produced in the nontarget language were coded as Codeswitch Words (CSWs) and CSCIUs.

Results

English averages were compared (non-statistically) to the N&B control group. Number and percentage of CIUs were similar, whereas WPM and CIUs/minute were different across groups (#CIUs: 99.5 and 97; %CIUs: 84.3 and 86; WPM: 133 and 166; CIUs/minute: 112.19 and 143 for bilingual and monolingual groups).

RQ1-RQ3 investigated average differences for the dependent variables across language and stimuli type (pictures (N=6), non-pictures (N=4)) to determine whether non-picture stimuli (e.g., procedural tasks) resulted in lower %CIUs and/or less efficient production than picture stimuli (due to less structure and more long term memory demands). See Table 1 for results.

RQ4 evaluated which participant variables contributed to the variance of CIUs/minute (measure of lexical retrieval and efficiency). The predictee variables entered into the stepwise multiple regression were: years education, percentage time using languages, and proficiency ratings for overall proficiency, production, comprehension, reading, and writing. Significant models emerged for both languages ($p<.001$). The adjusted R^2 was higher in Spanish (.375) than English (.235) with overall proficiency ratings contributing most in English (β =.494) and Spanish (β =.332).

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For RQ5 percent accuracies from O&A Battery were added to the RQ4 variables in another multiple regression to evaluate contribution of naming abilities to CIUs/min variance. Significant models emerged for both languages ($p<.001$). The adjusted R^2 was higher for Spanish (.447) than English (.388) with verb accuracy for Spanish β =.543) and English (β =.629) contributing most.

Discussion

Participants produced more information more efficiently in English with virtually no codeswitching across languages. The same %CIUs was produced across stimuli type, but Spanish nonpicture stimuli elicited the least efficient production. Overall proficiency was the language/demographic variable that contributed most to CIUs/minute; however, verb accuracy contributed most overall to CIUs/minute, perhaps due to the centrality of verbs to sentence/discourse production. N&B stimuli and scoring procedures may be appropriate for Spanish/English bilinguals. More research is needed with older bilingual adults and persons with bilingual aphasia.

References

Nicholas, L. E., & Brookshire, R. H. (1993). A system for quantifying the informativeness and efficiency of the connected speech of adults with aphasia. *Journal of Speech and Hearing Research, 36,* 338-350.

Druks, J., & Masterson, J. (2000). *An Object and Action Naming Battery.* London: Psychology Press.

Table 1. The Means of Response Times (in milliseconds) in Each Condition

SOA	Condition	Item Analysis			Participant Analysis		
		Related	Unrelated	Effect	Related	Unrelated	Effect
50	Verb–Patient	763.4±7.6	770.3±7.9	-6.9	783.6±17.4	710.7±14.3	72.8***
	Verb–Instrument	749.4±7.4	739.6±7.2	9.8	653.0±13.8	622.1±11.7	30.9**
	Noun–Asso Noun	787.8±8.5	755.4±7.1	32.4**	715.5±13.9	695.7±15.5	19.8
300	Verb–Patient	761.6±7.6	747.5±7.9	14.1	778.0±18.0	694.3±14.8	83.8***
	Verb–Instrument	749.6±7.5	729.6±7.2	20.0*	644.7±14.3	630.0±12.1	14.7
	Noun–Asso Noun	782.9±8.5	724.7±7.1	58.2***	755.0±14.3	684.4±16.0	70.6***

*$p<.05$, **$p<.01$, ***$p<.001$